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October 31, 2005

VIA FACSIMILE
EXPEDITED PROCEDURE

To: Examiner Carolyn Smith
Group Art Unit No. 1631
U. S. P. T. O.

Facsimile No. 571-273-8300

From: Phillip E. Miller

Facsimile No. 703-761-2375

Re: Filing of Appeal Brief
U. S. Patent Application Serial No. 09/870,009
Our Ref: YOR.418

Dear Examiner:

Enclosed please find an Appeal Brief in the above Application.

Thank you in advance for your kind consideration of this case.

Very truly yours,

Phillip E. Miller

PEM/lnb
Enclosure

TRANSMITTAL OF APPEAL BRIEF (Large Entity)	Docket No. JP920000069US1

In Re Application Of: **Hisashi Kashima**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/870,009	May 30, 2001	Carolyn Smith	21254	1631	8419

Invention: **NUCLEOTIDE SEQUENCE FOR IDENTIFYING A SOURCE OF GENETIC INFORMATION, AND DNA AND CELL INCLUDING THE SAME**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on

The fee for filing this Appeal Brief is: **$500.00**

☐ A check in the amount of the fee is enclosed.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

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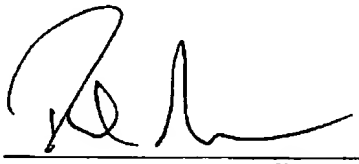

Signature

Dated: **October 31, 2005**

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09/870,009
JP920000069US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Kashima et al.

Serial No.:	09/870,009	Group Art Unit:	1631
Filed:	May 30, 2001	Examiner:	Carolyn L. Smith

For: NUCLEOTIDE SEQUENCE FOR IDENTIFYING A SOURCE OF GENETIC INFORMATION, AND DNA AND CELL INCLUDING THE SAME

Honorable Commissioner of Patents
Alexandria, VA 22313-1450

APPELLANT'S BRIEF ON APPEAL

Sir:

Appellant respectfully appeals the final rejection of claims 5, 8-12, 15, 17-27 and 30-34 in the Office Action dated May 9, 2005. A Notice of Appeal was filed herein on August 30, 2005, along with a Petition and Fee for One Month Extension of Time.

I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corporation, assignee of 100% interest of the above-referenced patent application.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant, Appellant's legal representative or Assignee which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 5, 8-12, 15, 17-27 and 30-34 are all the claims presently pending in the application, and are set forth fully in the attached Appendix. Claims 1-4, 6-7, 13-14, 16 and 28-29 have been canceled.

Claim 32 stands rejected under 35 U.S.C. § 112, first paragraph as allegedly not enabled by the specification.

Claims 5, 8-12, 15, 17-27 and 30-34 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Dollinger (U.S. Patent No. 5,451,505) in view of Beremand et al. (U. S. Patent No. 4,888,282).

Appellant respectfully appeals these rejections of claims 5, 8-12, 15, 17-27 and 30-34.

IV STATEMENT OF AFTER-FINAL AMENDMENTS

Appellant notes that an Amendment which made minor amendments to claims 5, 8, 11, 12 and 15 was filed on July 29, 2005. In an Advisory Action dated August 15, 2005, the Examiner stated that the Amendment would be entered for purposes of appeal.

Appellant notes that the pending claims are included in the Appendix attached hereto

V. SUMMARY OF THE INVENTION

The claimed invention (e.g., as recited in **independent claim 5**) is directed to DNA having embedded information. The DNA includes a gene portion including a predetermined gene, a portion which is other than the gene portion, and a nucleotide sequence which is not naturally occurring in the DNA and which is embedded in the portion which is other than the gene portion, and includes source identification information which identifies a source of the predetermined gene in the gene portion (Application at Figure 3; page 11, lines 2-21).

The claimed invention (e.g., as recited in **independent claim 8**) is directed to DNA which includes at least one special sequence which is not naturally occurring in the DNA and that is intentionally designed and is included as a part of a nucleotide sequence. The at least one special sequence comprises source identification information which identifies the source of a predetermined gene which is included in a gene portion of the DNA, and the at least one special sequence is embedded in the DNA(Application at Figure 3; page 11, lines 2-21).

The claimed invention (e.g., as recited in **independent claim 11**) is directed to a nucleotide sequence in DNA, which includes source identification information which identifies a source of a predetermined gene in a gene portion of the DNA. The information is

embedded in the DNA and is not naturally occurring in the DNA (Application at Figure 3; page 11, lines 2-21).

The claimed invention (e.g., as recited in **independent claim 12**) is directed to a cell in an organism, the cell having DNA which includes a gene portion including a predetermined gene, a portion which is other than the gene portion, and a nucleotide sequence which is not naturally occurring in the DNA and which is embedded in the portion other than the gene portion, and comprises source identification information which identifies a source of the predetermined gene in the gene portion (Application at Figure 3; page 11, lines 2-21).

The claimed invention (e.g., as recited in **independent claim 15**) is directed to DNA which includes a first portion comprising a predetermined gene, a second portion which is other than the first portion, and at least one nucleotide sequence which is not naturally occurring in the DNA and is embedded in the second portion, and which identifies a source of the predetermined gene in the first portion (Application at Figure 3; page 11, lines 2-21).

Conventional DNA may include a value-added gene embedded therein, in order to improve the characteristics of the organism having the DNA. However, such conventional DNA does not include any information therein to determine **the source of the value-added gene embedded therein**. Since DNA having such a value-added gene is easily copied, it is difficult to apply technical restrictions to the copying, by third parties, of value-added genes.

The claimed invention, on the other hand (e.g., as recited, for example, in claim 5), includes DNA having a nucleotide sequence which is not naturally occurring in the DNA and which is embedded in the portion which is other than the gene portion, and includes source identification information which identifies a source of the predetermined gene in the gene portion (Application at Figure 3; page 11, lines 2-21).

This nucleotide sequence may be used to identify the source of genetic information, for example, when the DNA is copied by a third party. Therefore, the claimed invention helps to prevent illegal copying of such genetic information (e.g., a value-added gene).

VI. GROUNDS OF REJECTION TO BE REVIEWED

The grounds of rejection to be reviewed by the Board of Patent Appeals and Interferences include:

1) rejection of claim 32 under 35 U.S.C. § 112, first paragraph; and

2) rejection of claims 5, 8-12, 15, 17-27 and 30-34 under 35 U.S.C. § 103(a) over Dollinger (U.S. Patent No. 5,451,505) in view of Beremand et al. (U. S. Patent No. 4,888,282).

VIII. ARGUMENT

Applicant's undersigned representative respectfully states that this case involves the most egregious misapplication of art that Applicant's undersigned representative has ever encountered.

A. The Rejection of Claim 32 under 35 U.S.C. §112, First Paragraph

The Examiner rejects claim 32 under 35 U.S.C. §112, first paragraph as allegedly not enabled. Appellant submits, however, that claim 32 is fully enabled by the specification.

Specifically, on pages 2-3 of the Office Action dated May 9, 2005, the Examiner alleges:

"... page 13, lines 3-6, of the specification, states 'a gene portion wherein a protein code sequence and its transcription control information are stored, and a portion wherein genetic information is not included'. This statement does not provide written support for the 'portion which is other than said gene portion' mentioned in new claim 32 because this portion on page 13 merely states that genetic information is not included. 'Genetic information' and 'protein code sequence and its transcription code information' differ in scope"

Further in the Advisory Action dated August 15, 2005, the Examiner alleges:

"Applicants state that 35 USC 112, first paragraph, requires only that the specification "enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same." It is noted that 35 USC 112, first paragraph, also requires written description of the invention wherein all limitations of the instant claims are fully and completely supported by the specfication (sic), drawings, and claims, as originally filed. Applicants cite pages 12, line 24 to page 13, line 6 of the specification. Applicants state they have defined a gene portion in an exemplary aspect. It is noted that examples do not provide clear and concise definitions of a term or phrase. Applicants argue that one of skill in the art would assume and reasonably conclude that a portion other than a gene portion is a portion "which does not store a protein code sequence and transcription control information for said sequence". This statement is found

unpersuasive as Applicants did not specifically state in clear and concise defintions (sic) what is and is not considered to be a genetic portion and other portion. Negative limitations must be fully supported by the original disclosure. And since there is a lack of clear and concise definitions, one of skill in the art would not know what to reasonably assume. One of skill in the art would be confused by the statement of "a portion wherein genetic information is not included" as stated in the specification on page 13, because by containing nucleotides automatically means it contains genetic information, in the broad and reasonable interpretation of "genetic information. Applicants argue that the Examiner failed to show that one of skill in the art would not know how to make and use the invention. This statement is found unpersuasive and confusing as the rejection set forth is a NEW MATTER, lack of written description, rejection and not an enablement rejection".

However, Appellants would point out that, as noted in MPEP §2163, to satisfy the written description requirement, a patent specification need only describe the claimed invention **in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention** (e.g., *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116). Further, Applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997).

Further, possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention was "ready for patenting" such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention. See, e.g., *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998); *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406; *Amgen, Inc. v. Chugai Pharmaceutical*, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991)

In this case, it is completely unreasonable to suggest that the specification does not describe the claimed invention of claim 32 in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. Indeed, Claim

32 recites "*wherein said portion which is other than said gene portion comprises a portion of said DNA which does not store a protein code sequence and transcription control information for said sequence*".

The Application states, for example:

> "*The form of the genetic information in a cell will now be described through an explanation of the overview of a process by which [a] gene codes for a protein molecule ... Arranged in the DNA are four bases, A (adenine), T (thymine), G (guanine) and C (cytosine). This sequence of the four bases (hereinafter the bases are referred to by their initials, A, T, G and C) of DNA consists of* ***a gene portion wherein a protein code sequence and its transcription control information are stored, and a portion wherein genetic information is not included***" (Application at page 12, line 24-page 13, line 6) (emphasis added).

That is, the Application defines a gene portion (e.g., in an exemplary aspect) as a portion where a protein code sequence and its transcription control information are stored. Thus, one of ordinary skill in the art would likely assume **and it is reasonable to conclude** that a portion other than a gene portion is a portion "*which does not store a protein code sequence and transcription control information for said sequence*", as recited in claim 32.

Thus, Appellant respectfully submits that one of ordinary skill in the art would likely be able to read the specification and easily make and use the claimed invention of claim 32. Therefore, the Examiner has clearly failed to establish that claim 32 is not enabled under 35 U.S.C. §112, first paragraph.

Therefore, the Board is respectfully requested to withdraw this rejection.

B. The Rejection of claims 5, 8-12, 15, 17-27 and 30-34 under 35 U.S.C. § 103(a) over Dollinger (U.S. Patent No. 5,451,505) in view of Beremand et al. (U. S. Patent No. 4,888,282).

As set forth on pages 3-8 of the Office Action dated May 9, 2005, the Examiner rejected claims 5, 8-12, 15, 17-27 and 30-34 under 35 U.S.C. § 103(a) over Dollinger in view

of Beremand, stating:

"Dollinger describes nucleic acids which are used as taggants that allows for subsequent identification of a substance ... which represent a correlation with source identification information ... and watermark sequences.... ...Dollinger describes the nucleic acid taggant comprises a specific nucleotide sequence or a composition of specific nucleotides to facilitate tracing or determining the origin or source of a material ... which represents identifying a source and source identification information.... Dollinger describes using combinations of sequences and varying levels of specific sequences to identify the product, product's origin, the lot or batch, or an identifier for a unit of commerce ... as well as using a sequence with multiple regions of specificity ... which is reasonably interpreted to encompass multiple patterns at predetermined locations... Dollinger describes tracking animals and plants (gene bearing organisms) ... which is reasonably interpreted to be determining product identity for cultivation or breeding purposes including value added genes... Dollinger describes that the nucleic acid may be covalently bound to any one or all of the components of a material comprised of different components ... which represents embedding at random locations"

Further, in the Advisory Action dated August 15, 2005, the Examiner alleges:

"Applicants argue that the prior art references would not have been combined and if combined the combination would not teach or suggest every element of the claimed invention. This statement is found unpersuasive as a motivational statement inlcuding (sic) the ability to track and the manufacture and distribution of natural resources was provided by Dollinger (col. 1, lines 17-20). Motivation and an expectation of success were provided in the rejection in the FINAL office action. Applicants summarize the Dollinger and Beremand et al. references. Applicants argue that the references would not be combined because they were directed to different problems. It is noted that the references need not be directed to the same problems, merely that there be a motivation to combine. Applicants argue that Dollinger has nothing to do with genes. This statement found unpersuasive as nucleic acids have something to do with genes, and these are described in the Dollinger reference. Furthermore, Dollinger describes the DQ-alpha allele, which is a gene. Applicants argue that Beremand is directed to a method of producing a synthetic gene and no person of ordinary skill in the art would have considered combining these references. Again, it is noted that motivation and expectation for success were discussed in the prior art rejection of the FINAL office action. Furthermore, Applicants have failed to provide any evidence or sound reasoning why this motivation or expectation of success would be considered improper.

Applicants argue that neither prior art reference teaches the limitations recited in instant claims 5 and 12 and similarly recited in instant claims 8, 11, and 15, particularly the highlighted limitations "embedded in said portion which is other than said gene portion" and "which identifies a source of said predetermined gene". Several portions of Dollinger stated in the FINAL office action will be reiterated to address these limitations. Dollinger describes a nucleic acid taggant which attaches to material (col. 1, lines 50-54) which

represents embedding in said portion which is other than said gene portion. Dollinger describes the nucleic acids may be bound to solid support (devoid of genetic information) (col. 2, lines 23-26). Dollinger describes that nucleic acid may be covalently bound to any one or all components of a material comprised of different components (col. 2, lines 19-22) which represents embedding. Dollinger describes the nucleic acid taggant comprises specific nucleotide sequence or a composition of specific nucleotides to facilitate tracing or determining the origin or source of material (col. 1, lines 54-60 and col. 3, lines 7-8) which represents identifying a source and source identification information. Dollinger describes use of a taggant of a sequence complementary to the DQ-alpha (col. 6, lines 55-56) which represents information which identifies a source of said predetermined gene (DQ-alpha). Applicants argue that they have repeated arguments over and over and the Examiner continues to ignore Applicants' arguments. This statement is found unpersuasive as the Examiner has responded to arguments. The claims are written broadly and have therefore been interpreted broadly and reasonably. The lack of clear and concise defintions (sic) in the original disclosure justifies the practice of using broad and reasonable interpretations.

A. Applicants repeatedly pointed out that the taggant in Dollinger could not be considered a nucleotide sequence. This statement is completely confusing as describes nucleic acids which are by defintion (sic) a nucleotide sequence. Nucleic acids are made up of nucleotides. More than one nucleotide is a nucleotide sequence. Applicants argue that the taggant of Dollinger is not embedded in DNA. It is noted that instant claim 5 does not state "embedded in DNA". Instant claim 5 recites "embedded in said portion which is other than said gene portion". It is noted that in the broadest reasonable interpretation of this phrase, the embedding is in a portion other than said gene portion which does not have to be DNA. Applicants argue that the taggant is applied to the barrel of radioactive waste with a spray bottle. That is merely one embodiment of the entire Dollinger reference which contains multiple embodiments. Applicants repeatedly argues that the nucleotide sequence is embedded in DNA. Applicants are advised to carefully read their claim limitations and read them broadly so that they understand that instant claim 5 does not state "embedded in DNA". Line 3 of claim 5 states " a portion" which could be anything in the universe that is not a gene portion. Nowhere does it state that this portion is DNA. If Applicants do not want the claims to interpreted so broadly, it is recommended that they narrow down their claim language with limitations supported by the original disclosure. Applicants argue about the embedding issue. It is noted that Applicants did not specifically define "embedded" which is therefore interpreted in a broad and reasonable manner. It is further noted that the Beremand et al. reference used in the 35 USC 103 rejection involves constructing, cloning, and use of expression vectors which involve embedding.

Applicants argue that the "material" in Dollinger to which the nucleic acid is covalently bound to is clearly not DNA. It is reiterated that claim 5 doesn't state "embedded in DNA". Applicants argue that Dollinger does not teach or suggest embedding a nucleotide sequence in a particular portion of DNA. It is noted that instant claim 5 does not specifically teach or suggest such embedding either. Applicants argue that Dollinger does not teach or suggest embedding a nucleotide sequence in a portion of DNA which is other than a gene portion of DNA. It is noted that instant claim 5 does not specifically teach or suggest such

embedding either. Applicants are advised to carefully read their instant claims with broad and reasonable interpretations of the limitations.

B. Applicants argue that they have repeatedly pointed out that the taggant in Dollinger is not used to identify the source of said predetermined gene. This statement is found unpersuasive as Dollinger describes use of a taggant of a sequence complementary to the DQ-alpha allele (col. 6, lines 55-56) wherein the taggant represents the allele or predetermined gene DQ-alpha. Dollinger describes the nucleic acid taggant comprises specific nucleotide sequence or a composition of specific nucleotides to facilitate tracing or determining the origin or source of material (col. 1, lines 54-60 and col. 3, lines 7-8) which represents identifying a source and source identification information. Applicants argue that the Dollinger taggant is applied to a material to identify a source of the material such as a nuclear power plant. It is noted that Dollinger contains multiple embodiments of which the nuclear power plant is just one. Dollinger also describes the DQ-alpha allele (gene) and other source identification information (in above sentences) which read upon the instant claim limitations. Applicants argue that the nucleotide sequence identifies a source of the predetermined gene and that Dollinger facilitates "determining the origin or source of a material". It is noted that Dollinger describe a predetermined gene, DQ-alpha, and using a taggant complementary to it. Dollinger describe nucleic acids used as taggants allows for subsequent identification of a substance (col. 1, lines 11-16 and 25-27). It is noted that DQ-alpha allele is a substance. It is further noted that the Beremand et al. reference involves constructing, cloning, and use of expression vectors which involve embedding of nucleotide sequences, a laboratory practice that the person of ordinary skill in the art knows has been used for decades.

Applicants argue that it would be completely unreasonable and absurd to suggest that a taggant used to identify a source of non-living material could teach or suggest a nucleotide sequence which is embedded in a non-gene portion of DNA and identifies a source of a gene in the gene portion of that DNA. This statement is found unpersuasive for many reasons. First, instant claim 5 does not specifically recite the limitation "embedded in a non-gene portion of DNA". This interpretation is reading extra limitations into instant claim 5 that simply aren't there. Nor does instant claim 5 specifically state "identifies a source of a gene in the gene portion of that DNA". Third, it is noted that "non-living material" is not stated in instant claim 5. Regardless, Dollinger describes living organisms contain unique nucleic acids sequences (also called nucleotide sequences) that are either naturally or artificially introduced (col. 2, lines 65-67). Dollinger describes tracking animals and plants (gene bearing organisms) (col. 1, lines 17-19) which are living things and sources of genes.

Applicants argue that the Examiner concedes that Dollinger does not teach or suggest a predetermined gene. This statement is found unpersuasive and incorrect. It is noted that Dollinger do not teach a gene portion including a predetermined gene comprising a protein code.

Applicants summarize the Beremand et al. reference and argue that Beremand et al. do not describe embedding a nucleotide sequence in a non-gene portion of the DNA molecule to identify the source of the ACP gene. It is noted that instant claim 5 does not specifically

recite a non-gene portion of DNA, but rather " portion which is other than said gene portion" which can be anything in the universe other than the gene portion. There is no recitation of DNA in line 3 of instant claim 5. It is also noted that a single reference does not need to contain all of the limitations of the instant claims in a 35 USC 103 rejection (This is not a 35 USC 102 rejection.)"

1. Independent claim 5

Independent claim 5 recites:

"DNA having embedded information, comprising:

a gene portion including a predetermined gene;

a portion which is other than said gene portion; and

a nucleotide sequence which is not naturally occurring in said DNA and which is embedded in said portion which is other than said gene portion, and comprises source identification information which identifies a source of said predetermined gene in said gene portion" (emphasis added)

Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law.

Specifically, the Examiner alleges that Dollinger would have been combined with Beremand to form the claimed invention. Appellant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Dollinger discloses methods for tagging and tracing materials (e.g., barrels of radioactive waste) using nucleic acids as taggants. The process of tagging involves altering a substance in a manner that allows for the subsequent identification **of the substance** by detecting the alteration which involves nucleic acids (Dollinger at Abstract).

Beremand discloses a synthetic gene which encodes for an acyl carrier protein (Beremand at Abstract).

However, Appellant submits that these references would not have been combined as alleged by the Examiner. Indeed, these references are directed to different problems. Specifically, Dollinger is directed to **a taggant (e.g., a nucleic acid) to an item such as radioactive waste in order to identify the source of the item.** That is, Dollinger has

nothing to do with genes. Beremand, on the other hand, is directed to **a method of producing a synthetic gene**. Certainly, no person of ordinary skill in the art would have considered combining these references.

Further, Appellant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, contrary to the Examiner's allegations, neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests "*a nucleotide sequence which is not naturally occurring in said DNA and which is **embedded in said portion which is other than said gene portion**, and comprises source identification information **which identifies a source of said predetermined gene** in said gene portion*", as recited in claims 5 and 12 and similarly recited in claims 8, 11, and 15.

With respect to Dollinger, Appellant respectfully notes that Appellant repeated his arguments over and over to the Examiner but the Examiner continuously ignored Appellant's arguments.

Indeed, the Examiner ignored Appellant's arguments included in the **Amendment filed on April 13, 2004** and the **Amendment filed on September 1, 2004**. The Examiner's failure to consider Appellant's arguments necessitated the filing of a **Request for Continued Examination on October 6, 2004**. The Examiner then ignored Appellant's arguments included in the **Amendment filed on March 3, 2005 which necessitated this Appeal.**

Again, Appellant points out that **Dollinger does not teach or suggest a nucleotide sequence that is "*embedded in said portion [of DNA] which is other than said gene portion*"**

First, Appellant has repeatedly pointed out that the taggant in Dollinger could not reasonably be equated with a "nucleotide sequence", but even assuming (arguendo) that the taggant could be considered a "nucleotide sequence", **the taggant in Dollinger is not "embedded in DNA"**, let alone embedded in a portion which is other than a gene portion of DNA (e.g., a portion of DNA which does not include a protein code sequence and its transcription control information). Instead, as noted above, the taggant is applied to the barrel

of radioactive waste with a spray bottle.

However, on page 5 of the Office Action of May 9, 2005, the Examiner surprisingly states:

> *"Dollinger describes that the nucleic acid may be covalently bound to any one or all of the components of a material comprised of different components (col. 2, lines 19-22) which represents embedding at random locations, as stated in instant claim 22".*

Thus, in spite of Appellant's repeated arguments pointing out that in the claimed invention the nucleotide sequence is **embedded in DNA**, the Examiner surprisingly responded by stating only that the nucleic acid in Dollinger is "covalently bound" to the "material".

Appellant is dumbfounded by this response.

Indeed, Appellant would point out that a covalent bond is a chemical bond in which two atoms share valence electrons. Clearly, a mere "sharing of electrons" does not suggest embedding a nucleotide sequence in a strand of DNA. In the claimed invention, the nucleotide sequence (e.g., the entire nucleotide sequence) is "**embedded in** DNA", not "**attached to** DNA" (e.g., see Application at Figure 8). Thus, the claimed invention is completely unrelated to the nucleic acid in Dollinger which merely has an atom that shares an electron with an atom of some material.

Further, the "material" to which the nucleic acid is covalently bound is clearly **not DNA**. Instead, the "material" in Dollinger may include "air pollutants, oils, aromatic compounds, explosive compositions, food stuffs, medicaments, inks, paper goods, and paint products" (Dollinger at col. 2, lines 10-14). Dollinger states that the taggant may be applied to a material by either spraying the taggant onto the surface of the item or physically mixing the taggant and the item (Dollinger at col. 4, lines 13-19).

Appellant would point out that these "materials" in Dollinger are **not even living organisms** and therefore, do not likely include DNA. Therefore, it is completely unreasonable and absurd to suggest that using a spray bottle to spray a nucleic acid onto one of these "materials" is akin to embedding a nucleotide sequence **in DNA**.

Again, Appellant is dumbfounded by this response.

Moreover, even assuming (arguendo) that the taggant could somehow be considered a "nucleotide sequence" which is somehow embedded in DNA, Dollinger certainly does not teach or suggest embedding a nucleotide sequence in a particular portion of DNA. That is, Dollinger certainly does not teach or suggest embedding a nucleotide sequence in **a portion of DNA which is other than a gene portion of DNA** (e.g., a portion of DNA which does not include a protein code sequence and its transcription control information) as in the claimed invention.

Further, **Dollinger does not teach or suggest a nucleotide sequence *"which identifies a source of said predetermined gene"***

Indeed, Appellant repeatedly pointed out to the Examiner that the taggant in Dollinger is not used to **identify the "source of said predetermined gene"**. Instead, as noted above, the taggant is applied to a material (e.g., a barrel of radioactive waste) to identify the source of the material (e.g., the nuclear power plant that generated the radioactive waste).

However, in the Office Action dated May 9, 2005, the Examiner again ignored this argument, stating:

> *"Dollinger describes the nucleic acid taggant comprises a specific nucleotide sequence or a composition of specific nucleotides to facilitate tracing or determining the origin or source of a material (col. 1, lines 54-60 and col. 3, lines 7-8) which represents identifying a source and source identification information, as stated in instant claim 5".*

Thus, in spite of Appellant's repeated arguments pointing out that in the claimed invention the nucleotide sequence identifies a source of **the predetermined gene**, the Examiner surprisingly responded by stating only that the nucleic acid in Dollinger facilitates "determining the origin or source of **a material**".

Appellant is dumbfounded by this response.

Appellant again points out that Dollinger states that "[t]he materials or substances of this invention include those selected from the group consisting of air pollutants, oils, aromatic compounds, explosive compositions, food stuffs, medicaments, inks, paper goods, and paint products" (Dollinger at col. 2, lines 10-14). Therefore, the Examiner is surprisingly

attempting to equate the "material" which is tagged with a taggant in Dollinger (e.g., an explosive, radioactive waste, paper, paint, etc.) with **a gene**.

Appellant respectfully submits that no person of ordinary skill in the art would ever confuse the "predetermined gene" of the claimed invention with the "material" (e.g., an explosive, radioactive waste, paper, paint, etc.) which is not even a living organism. Thus, it is completely unreasonable and absurd to suggest that a taggant used to identify a source of non-living material (e.g., the manufacturer of an explosive, radioactive waste, paper, paint, etc.) on which the taggant is applied with a spray bottle, could teach or suggest a nucleotide sequence which is embedded in a non-gene portion of DNA and **identifies a source of a gene in the gene portion of that DNA**.

Moreover, Appellant would point out that on page 6 of the Office Action, **the Examiner expressly concedes that Dollinger does not teach or suggest a predetermined gene.** Appellant therefore, states that it is even more unreasonable and absurd to suggest that Dollinger teaches identifying a source of a predetermined gene, since Dollinger does not even teach or suggest a pretermined gene.

Therefore, Appellant again submits that Dollinger does not teach or suggest these novel features. Therefore, Appellant again requests that the Examiner give these arguments proper consideration.

Likewise, neither are these novel features of the invention taught or suggested by Beremand. Indeed, as noted above, Beremand merely discloses a synthetic ACP gene which encodes for acyl carrier protein (ACP). Beremand teaches that the gene may be a component of a larger synthetic recombinant DNA molecule including other DNA sequences (Beremand at col. 5, lines 1-3).

However, nowhere does Beremand teach or suggest embedding a nucleotide sequence in a non-gene portion of the DNA molecule to identify the source of the ACP gene. Thus, for example, if Purdue University created a DNA molecule which includes the ACP gene, a person examining the DNA molecule may have no way of knowing that Purdue University was the source of the ACP gene in the DNA molecule.

Therefore, contrary to the Examiner's allegations, Beremand clearly does not make up for the deficiencies of Dollinger.

Further, in the Advisory Action dated August 15, 2005, the Examiner surprisingly states that "*Applicants are advised to carefully read their claim limitations and read them broadly so that they understand that instant claim 5 does not state "embedded in DNA". Line 3 of claim 5 states " a portion" which* ***could be anything in the universe*** *that is not a gene portion. Nowhere does it state that this portion is DNA"* (emphasis added).

Again, Appellant is dumbfounded by this response.

The Examiner's position is so illogical that it is difficult to argue against. Appellant really does not know where to start.

Claim 5 recites "***DNA*** *having embedded information,* ***comprising****: a gene portion including a predetermined gene; a portion which is other than said gene portion...".* Clearly, one of ordinary skill in the art would not construe the term "a portion" to mean anything other than "a portion of DNA".

The Examiner later states "*Applicants argue that Dollinger does not teach or suggest embedding a nucleotide sequence in a portion of DNA which is other than a gene portion of DNA. It is noted that instant claim 5 does not specifically teach or suggest such embedding either".*

First, Applicant would point out that it is not the Examiner duty to determine what the claims "teach or suggest". Instead, the Examiner's duty is to determine whether the "references" teach or suggest the claims. In this case, the Examiner's response is a completely inadequate response to Applicant's assertion that the references to not teach or suggest embedding a nucleotide sequence in a portion of DNA.

Therefore, Appellant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention of claim 5.

Therefore, the Board is respectfully requested to withdraw this rejection.

2. Independent Claim 8

Independent claim 8 recites:

"DNA comprising:

at least one special sequence which is not naturally occurring in said DNA and that is

intentionally designed and is included as a part of a nucleotide sequence,

wherein said at least one special sequence comprises source identification information which identifies the source of a predetermined gene which is included in a gene portion of said DNA, and

wherein said at least one special sequence is embedded in said DNA" (emphasis added)

Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests "*wherein said at least one special sequence comprises source identification information which identifies the source of a predetermined gene which is included in a gene portion of said DNA* " as recited in claim 8.

Appellant notes that these features are similar to the features discussed above with respect to claim 5. Therefore, Appellant's arguments made above with respect to claim 5 are incorporated by reference herein.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 8.

Therefore, the Board is respectfully requested to withdraw this rejection.

3. Independent claim 11

Independent claim 11 recites:

"A nucleotide sequence in DNA, comprising:

source identification information which identifies a source of a predetermined gene in a gene portion of said DNA,

wherein said information is embedded in said DNA and is not naturally occurring in said DNA" (emphasis added).

Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, neither Dollinger, nor Beremand, nor any

combination thereof teaches or suggests "*source identification information which identifies a source of a predetermined gene in a gene portion of said DNA* " as recited in claim 11.

Appellant notes that these features are similar to the features discussed above with respect to claim 5. Therefore, Appellant's arguments made above with respect to claim 5 are incorporated by reference herein.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 11.

Therefore, the Board is respectfully requested to withdraw this rejection.

4. Independent Claim 12

Independent claim 12 recites:

"A cell in an organism, said cell having DNA comprising:

a gene portion including a predetermined gene;

a portion which is other than said gene portion; and

a nucleotide sequence which is not naturally occurring in said DNA and which is embedded in said portion other than said gene portion, and comprises source identification information which identifies a source of said predetermined gene in said gene portion"

(emphasis added)

Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests "*a nucleotide sequence which is not naturally occurring in said DNA and which is embedded in said portion other than said gene portion, and comprises source identification information which identifies a source of said predetermined gene in said gene portion"* as recited in claim 12.

Appellant notes that these features are similar to the features discussed above with respect to claim 5. Therefore, Appellant's arguments made above with respect to claim 5 are incorporated by reference herein.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor

any combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 12.

Therefore, the Board is respectfully requested to withdraw this rejection.

5. Independent Claim 15

Independent claim 15 recites:

" DNA comprising:

a first portion comprising a predetermined gene;

a second portion which is other than said first portion; and

at least one nucleotide sequence which is not naturally occurring in said DNA and is embedded in said second portion, and which identifies a source of said predetermined gene in said first portion" (emphasis added)

Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests "*at least one nucleotide sequence which is not naturally occurring in said DNA and is embedded in said second portion, and which identifies a source of said predetermined gene in said first portion* " as recited in claim 15.

Appellant notes that these features are similar to the features discussed above with respect to claim 5. Therefore, Appellant's arguments made above with respect to claim 5 are incorporated by reference herein.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 15.

Therefore, the Board is respectfully requested to withdraw this rejection.

6. Dependent Claim 9

Claim 9 depends from claim 8 and further recites *"wherein said at least one special sequence comprises a plurality of sequences embedded at predetermined locations of said DNA "*. This feature is discussed in the present Application at page 8, lines 6-16; page 26,

line 14-page 27, line 12.

The Examiner asserts that this feature is disclosed in Dollinger at col. 3, lines 22-28 and col. 5, lines 9-11.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 9. Therefore, the Board is respectfully requested to withdraw this rejection.

7. Dependent Claim 10

Claim 10 depends from claim 8, and further recites "*wherein said at least one special sequence comprises a plurality of sequences having a plurality of types of patterns embedded at predetermined locations of said DNA*". This feature is discussed in the present Application at page 8, lines 6-16; page 26, line 14-page 27, line 12.

The Examiner asserts that this feature is disclosed in Dollinger at col. 3, lines 22-28 and col. 5, lines 9-11.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 10. Therefore, the Board is respectfully requested to withdraw this rejection.

8. Dependent Claim 17

Claim 17 depends from claim 15 and further recites "*wherein said predetermined gene comprises a value-added gene that is provided by one of selective breeding, cultivation, and gene manipulation*". This feature is discussed in the present Application at page 11, lines

9-12.

The Examiner asserts that this feature is disclosed in Dollinger at col. 1, lines 17-19.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 17. Therefore, the Board is respectfully requested to withdraw this rejection.

9. Dependent Claim 18

Claim 18 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence comprises a plurality of sequences having a plurality of types of patterns embedded at predetermined locations in said second portion*".

This feature is discussed in the present Application at page 8, lines 6-16; page 26, line 14-page 27, line 12.

The Examiner asserts that this feature is disclosed in Dollinger at col. 3, lines 22-28 and col. 5, lines 9-11.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 18. Therefore, the Board is respectfully requested to withdraw this rejection.

10. Dependent Claim 19

Claim 19 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence comprises a plurality of nucleotide sequences*". This feature is discussed in the present Application at page 8, lines 6-16; page 26, line 14-page 27, line 12.

The Examiner asserts that this feature is disclosed in Dollinger at col. 3, lines 22-28 and col. 5, lines 9-11.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 19. Therefore, the Board is respectfully requested to withdraw this rejection.

11. Dependent Claim 20

Claim 20 depends from claim 19 and further recites "*wherein said plurality of nucleotide sequences comprises different nucleotide sequences*". This feature is discussed in the present Application at page 8, lines 6-16; page 24, lines 6-19.

The Examiner asserts that this feature is disclosed in Dollinger at col. 3, lines 22-28 and col. 5, lines 9-11.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 20. Therefore, the Board is respectfully requested to withdraw this rejection.

12. Dependent Claim 21

Claim 21 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence is copy tolerant*". This feature is discussed in the present Application at page 14, lines 2-10.

The Examiner asserts that this feature is disclosed in Dollinger at col. 2, lines 3-5

However, Appellant respectfully submits that the Examiner's position is flawed as a

matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 21. Therefore, the Board is respectfully requested to withdraw this rejection.

13. Dependent Claim 22

Claim 22 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence is embedded at a random location in said second portion*". This feature is discussed in the present Application at page 20, lines 6-14.

The Examiner asserts that this feature is disclosed in Dollinger at col. 2, lines 19-22.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 22. Therefore, the Board is respectfully requested to withdraw this rejection.

14. Dependent Claim 23

Claim 23 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence and is not naturally generated through gene mutation*". This feature is discussed in the present Application at page 11, lines 9-21.

The Examiner asserts that this feature is disclosed in Dollinger at col. 2, lines 6-7.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor

any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 23. Therefore, the Board is respectfully requested to withdraw this rejection.

15. Dependent Claim 24

Claim 24 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence comprises one of a restrictive enzyme identification sequence and a promoter*". This feature is discussed in the present Application at page 22, lines 15-21.

The Examiner asserts that this feature is disclosed in Dollinger at col. 5, lines 47-51.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 24. Therefore, the Board is respectfully requested to withdraw this rejection.

16. Dependent Claim 25

Claim 25 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence is detectable using a nucleotide sequence that is complementary to said at least one nucleotide sequence*". This feature is discussed in the present Application at page 29, lines 4-21.

The Examiner asserts that this feature is disclosed in Dollinger at col. 6, lines 3-20.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 25. Therefore, the Board is respectfully requested to withdraw

this rejection.

17. Dependent Claim 26

Claim 26 depends from claim 15 and further recites "*wherein said at least one nucleotide sequence is embedded at a predetermined location in said second portion*". This feature is discussed in the present Application at page 16, lines 22-27.

The Examiner asserts that this feature is disclosed in Dollinger at col. 2, lines 23-26.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 26. Therefore, the Board is respectfully requested to withdraw this rejection.

18. Dependent Claim 27

Claim 27 depends from claim 15 and further recites "*wherein said nucleotide sequence is correlated with said source identification information*". This feature is discussed in the present Application at page 7, line 10-page 8, line 5.

The Examiner asserts that this feature is disclosed in Dollinger at col. 1, lines 11-16 and 25-27.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 27. Therefore, the Board is respectfully requested to withdraw this rejection.

19. Dependent Claim 30

Claim 30 depends from claim 5 and further recites "*wherein said nucleotide sequence comprises a watermark sequence*". This feature is discussed in the present Application at page 11, lines 1-10.

The Examiner asserts that this feature is disclosed in Dollinger at col. 1, lines 11-16 and 25-27.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 30. Therefore, the Board is respectfully requested to withdraw this rejection.

20. Dependent Claim 31

Claim 31 depends from claim 5 and further recites "*wherein said predetermined gene comprises a protein code sequence and transcription control information for said sequence*". This feature is discussed in the present Application at page 13, lines 1-16.

The Examiner asserts that this feature is disclosed in Beremand at Abstract; col. 4, lines 44-46.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 31. Therefore, the Board is respectfully requested to withdraw this rejection.

21. Dependent Claim 32

Claim 32 depends from claim 5 and further recites "*wherein said portion which is other than said gene portion comprises a portion of said DNA which does not store a protein*

code sequence and transcription control information for said sequence". This feature is discussed in the present Application at page 13, lines 1-16.

The Examiner asserts that this feature is disclosed in Dollinger at col. 12, lines 3-7.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 32. Therefore, the Board is respectfully requested to withdraw this rejection.

22. Dependent Claim 33

Claim 33 depends from claim 5 and further recites "*wherein said predetermined gene comprises a gene which is produced by artificial, intentional manipulation*". This feature is discussed in the present Application at page 2, lines 4.

The Examiner asserts that this feature is disclosed in Dollinger at col. 2, lines 6-7.

However, Appellant respectfully submits that the Examiner's position is flawed as a matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 33. Therefore, the Board is respectfully requested to withdraw this rejection.

23. Dependent Claim 34

Claim 34 depends from claim 5 and further recites "*wherein said gene portion is transcribed into RNA, and said portion other than said gene portion is not transcribed into RNA*". This feature is discussed in the present Application at page 13, lines 1-16.

The Examiner asserts that this feature is disclosed in Dollinger at col. 3, lines 22-24.

However, Appellant respectfully submits that the Examiner's position is flawed as a

matter of fact and as a matter of law. Specifically, nowhere in the cited passage, or anywhere else for that matter, does the reference teach or suggest this feature.

Therefore, Appellant respectfully submits that neither Dollinger, nor Beremand, nor any alleged combination thereof teaches or suggests each and every element of the claimed invention as recited in claim 34. Therefore, the Board is respectfully requested to withdraw this rejection.

Therefore, in short, the dependent claims of the present Application define elements and limitations which further place the claimed invention squarely in the realm of statutory subject matter and which provide a useful, tangible and concrete result.

Therefore, dependent claims like independent claims 5, 8, 11, 12 and 15, include at least one element which is not taught or suggested by the cited references, or any combination of the cited references.

In view of all of the foregoing, Appellant respectfully submits that the Examiner's rejections are erroneous as a matter of fact and law

VIII. CONCLUSION

In view of the foregoing, Appellant submits that claims 5, 8-12, 15, 17-27 and 30-34, all the claims presently pending in the application, are patentably distinct from the prior art of record and in condition for allowance. Thus, the Board is respectfully requested to remove the rejections of claims 5, 8-12, 15, 17-27 and 30-34.

Please charge any deficiencies and/or credit any overpayments necessary to enter this paper to Assignee's Deposit Account number 50-0510.

Respectfully submitted,

Dated: 10/31/05

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CLAIMS APPENDIX

1-4. (Canceled)

5. DNA having embedded information, comprising:

a gene portion including a predetermined gene;

a portion which is other than said gene portion; and

a nucleotide sequence which is not naturally occurring in said DNA and which is embedded in said portion which is other than said gene portion, and comprises source identification information which identifies a source of said predetermined gene in said gene portion.

6-7. (Canceled)

8. DNA comprising:

at least one special sequence which is not naturally occurring in said DNA and that is intentionally designed and is included as a part of a nucleotide sequence,

wherein said at least one special sequence comprises source identification information which identifies the source of a predetermined gene which is included in a gene portion of said DNA, and

wherein said at least one special sequence is embedded in said DNA.

9. The DNA according to claim 8, wherein said at least one special sequence comprises a plurality of sequences embedded at predetermined locations of said DNA.

10. The DNA according to claim 8, wherein said at least one special sequence comprises a plurality of sequences having a plurality of types of patterns embedded at predetermined locations of said DNA.

11. A nucleotide sequence in DNA, comprising:

source identification information which identifies a source of a predetermined gene in

a gene portion of said DNA,

wherein said information is embedded in said DNA and is not naturally occurring in said DNA.

12. A cell in an organism, said cell having DNA comprising:

a gene portion including a predetermined gene;

a portion which is other than said gene portion; and

a nucleotide sequence which is not naturally occurring in said DNA and which is embedded in said portion other than said gene portion, and comprises source identification information which identifies a source of said predetermined gene in said gene portion.

13-14. (Canceled)

15. DNA comprising:

a first portion comprising a predetermined gene;

a second portion which is other than said first portion; and

at least one nucleotide sequence which is not naturally occurring in said DNA and is embedded in said second portion, and which identifies a source of said predetermined gene in said first portion.

16. (Canceled)

17. The DNA according to claim 15, wherein said predetermined gene comprises a value-added gene that is provided by one of selective breeding, cultivation, and gene manipulation.

18. The DNA according to claim 15, wherein said at least one nucleotide sequence comprises a plurality of sequences having a plurality of types of patterns embedded at predetermined locations in said second portion.

19. The DNA according to claim 15, wherein said at least one nucleotide sequence

comprises a plurality of nucleotide sequences.

20. The DNA according to claim 19, wherein said plurality of nucleotide sequences comprises different nucleotide sequences.

21. The DNA according to claim 15, wherein said at least one nucleotide sequence is copy tolerant.

22. The DNA according to claim 15, wherein said at least one nucleotide sequence is embedded at a random location in said second portion.

23. The DNA according to claim 15, wherein said at least one nucleotide sequence and is not naturally generated through gene mutation.

24. The DNA according to claim 15, wherein said at least one nucleotide sequence comprises one of a restrictive enzyme identification sequence and a promoter.

25. The DNA according to claim 15, wherein said at least one nucleotide sequence is detectable using a nucleotide sequence that is complementary to said at least one nucleotide sequence.

26. The DNA according to claim 15, wherein said at least one nucleotide sequence is embedded at a predetermined location in said second portion.

27. The DNA according to claim 15, wherein said nucleotide sequence is correlated with said source identification information.

28.- 29.(Canceled)

30. The DNA according to claim 5, wherein said nucleotide sequence comprises a

watermark sequence.

31. The DNA according to claim 5, wherein said predetermined gene comprises a protein code sequence and transcription control information for said sequence.

32. The DNA according to claim 5, wherein said portion which is other than said gene portion comprises a portion of said DNA which does not store a protein code sequence and transcription control information for said sequence.

33. The DNA according to claim 5, wherein said predetermined gene comprises a gene which is produced by artificial, intentional manipulation.

34. The DNA according to claim 5, wherein said gene portion is transcribed into RNA, and said portion other than said gene portion is not transcribed into RNA.

EVIDENCE APPENDIX

N/A

RELATED PROCEEDINGS APPENDIX

N/A

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Appeal Brief was filed by facsimile with the United States Patent and Trademark Office, Examiner Carolyn Smith, Group Art Unit # 1631 at fax number 571-272-8300 this 31st day of October, 2005.

Phillip E. Miller, Esq.
Reg. No. 46,060